

## Original Article

# Development of the Indonesian sexual quality of life scale for women (ISQOL-W)

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## Abstract

Sexual quality of life is greatly influenced by sexual function, yet thorough measures remain limited and vary across regions. In Indonesia, diverse cultural and religious contexts notably shape sexual quality of life. Thus, it is important to have a tool that considers both internal and external aspects. The aim of this study was to develop a valid and reliable scale that specifically measures Indonesian sexual quality of life for women (ISQOL-W), considering cultural and social factors. A total of 228 participants were recruited from April 30, 2023, to September 30, 2023. The ISQOL-W was developed through two phases: item generation and psychometric evaluation. In the first phase, 68 items were drafted based on definitions and dimensions of sexual quality of life. In the second phase, exploratory factor analysis resulted in 34 items with a loading factor greater than 0.4 (ranging from 0.41 to 0.84) which were categorized into four domains/factors: sexual-related emotion, sexual fantasy, sexual arousal, and sexual relationship. The Cronbach's  $\alpha$  coefficient for the overall questionnaire was 0.915, with subscale reliability ranging from 0.826 to 0.903. Further analysis revealed significant differences in ISQOL-W scores across relationship status, educational level, history of last sexual activity, and type of sexual activity. In conclusion, the ISQOL-W demonstrated robust psychometric properties, supporting its use in future studies. This study represents the first effort to develop and validate a sexual quality of life scale specifically for Indonesian women.

**Keywords:** Indonesian women, reliability, scale development, sexual quality of life, validity

## Introduction

Every human beings have the right to prosperity in order to enhance their quality of life. Quality of life (QoL) refers to how people perceive their place in life in relation to their objectives, standards, expectations, and concerns, as well as the cultural and value systems in which they live [1]. Individual's QoL can be evaluated across various domains, such as social relationships, environmental factors, psychological well-being, and physical health. Sex or sexual activity, is regarded as a basic human need in the context of social interactions [2]. Sex encompasses the way individuals experience and express their sexuality, which sets them apart from one another. It alludes to the enigmatic essence that draws people towards each other [3]. Each individual holds a unique sexual perspective that can be influenced by cultural, norm, societal, environmental, religious, physical, educational, and psychological elements, as well as their place of residence [4]. The perceived need for reproduction to maintain viability and the level of social pressure placed on people to hide their sexuality have an impact on sexual activity [3]. Moreover, sexuality is often perceived as prohibited, taboo, or restricted in numerous nations, including Indonesia



[5,6]. Sexual behavior in the Indonesian population is strongly influenced by religious teachings that have been learned since childhood, a culture that is still not transparent, and related to morals where sex is prohibited before marriage [7]. In addition, women's reproductive health is still related to gender issues, such as women's inability to make reproductive decisions as well as attitudes and behaviors in the environment that seem to prioritize men. The stigma that arises in Indonesian society towards reproductive diseases in women has a different effect than men in society for physical and sexual discrimination [8]. This perspective makes it challenging for certain individuals to openly discuss their sexual issues, consequently affecting their quality of life, relationships, and delayed management [9].

In recent years, there has been a growing recognition of the significance of sexual quality of life as an essential element of holistic health and wellness [10]. Researchers, clinicians, and health professionals have increasingly focused on understanding and addressing factors that influence sexual quality of life, as they play a pivotal role in maintaining intimate relationships, self-esteem, and overall life satisfaction [10-12]. Therefore, a comprehensive tool is needed to measure all the factors related to sexual quality of life.

The concept of sexual quality of life has been explored through various studies [13-16]. However, previous research has primarily centered on individual aspects encompassing physical well-being, internal relationships, emotional experiences, psychological dimensions, and issues related to sexual dysfunction [13-16]. Sexual problems extend beyond individual concerns, encompassing external elements like culture, norms, and environment that play a significant role in shaping an individual's sexuality [17,18]. A study conducted by McClelland suggested key points to be taken into account while measuring sexual well-being. In addition to an individual's personal sexual experiences, external factors such as cultural and environmental influences should also be taken into consideration [4]. The aim of this study was to validate the sexual quality of life based on the diverse culture of the Indonesian women population.

## Methods

This study was conducted in two phases: (1) item generation for the Indonesian sexual quality of life for women (ISQOL-W) and assessment of general questionnaire properties [19]; and (2) evaluation of psychometric properties to assess effectiveness by conducting factor analysis and reliability tests [19].

### Phase I: Development phase

A panel of researchers, including psychologists, sexologists, and medical doctors who also have proficiency in bilingual languages was formed to develop a pool of items based on the concept analysis of sexual quality of life, according to McClelland [4]. The sexual quality of life concept includes three dimensions with ten attributes: (1) physiological (sexual desire, sexual arousal or excitement, and body image); (2) psychological (sexual dysfunction, sexual satisfaction, sexual esteem, and sexual thoughts or fantasies); and (3) sociocultural (relationships, gender equality, sexual norms, or social norms) [4]. These ten attributes were divided into 22 indicators, and the first 68 pool items were produced. The response format involved a six-point Likert scale, ranging from one for "absolutely inappropriate" to six for "absolutely appropriate". Some items have negative wording; thus, the numerical scoring is reversed. Higher scores indicate higher levels of sexual quality of life.

Following the guidelines from McClelland's study, a conceptual and operational definition of sexual quality of life was developed. The conceptual definition of sexual quality of life is a status that describes an individual's subjective evaluation of the positive and negative aspects of her sexual relationships, along with her affective response to this evaluation. Meanwhile, the operational definition includes dimensions related to one's healthy and pleasurable sexual life, including dimensions of sexual response, cognition, and attitude, as well as dimensions related to intimate relationships and the feeling that one is physically able and entitled to experience sexual sensations [4].

## Phase II: Evaluation phase

After the instrument was developed, the evaluation was tested among Indonesian women. Participants who provided informed consent to participate in the study were administered a questionnaire. Each participant received an online questionnaire consisting of two parts. The first section asked for sociodemographic information, including age, level of education, relationship status, occupation, and sexual activity characteristics (i.e., type of last sexual activity and last period of sexual activity). The second part of the questionnaire contained 68 pool items from the ISQOL-W that had been converted into a Google Form. The online questionnaire was distributed to individuals online or distributed through various social media platforms, such as WhatsApp, Instagram, and Facebook. After the responses from the participants were collected, a structured validation process was conducted. The structural validity was confirmed through item analysis and exploratory factor analysis (EFA). The EFA determines the common elements that account for the structure and order of the measured variables [20]. Furthermore, the final questions were validated through an internal consistency analysis of their reliability.

## Study participants

In this study, the sample size was determined based on the guidelines provided by Mundform *et al.* (2005), which recommend a minimum sample size ranging from 3 to 20 times the number of variables [21]. Given the 68 items included in the questionnaire, the minimum required sample size was 204 participants. A total of 228 respondents were recruited, which exceeded the minimum requirement and was deemed sufficient to represent the population. The sampling technique employed was a non-probability sampling method, using purposive sampling to select participants who meet the inclusion criteria. The inclusion criteria were Indonesian women aged 18 years and above, who were sexually active and had access to the internet. Participants who did not have a partner or had no sexual activity in the past six months were excluded from this study.

## Statistical analysis

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were performed prior to the validity and reliability tests. If the results of Bartlett's test for sphericity yield a  $p$ -value less than 0.05 and the KMO measure of sampling adequacy is above 0.5, factor analysis can be performed. After confirming that the correlation matrix was factorable, it was submitted for EFA [22]. The EFA was performed using the maximum likelihood extraction method with promax rotation to ascertain the structure of the scale in the EFA test. Maximum likelihood extraction enables the statistical significance testing of factor loadings and correlations between components [23]. Promax rotation is a common oblique rotation procedure based on varimax rotation. This rotation was implemented to allow the analyst to manage the degree of inter-factor correlation and to detect the presence of a simple structure in the items more effectively than varimax [22,24]. The factor extraction technique of parallel analysis is used to identify the number of factors based on a comparison of the eigenvalues of the actual data to those of the simulated data. The eigenvalues of the factors found in the randomly simulated data set are compared to those of the factors in the real data set in a parallel analysis. This method is preferred because of its high accuracy in calculating the optimum number of components to maintain [20,22,25].

After selecting statement items with a factor loading of at least 0.40 based on the EFA results, it is anticipated that a number of factors will be derived [22]. The subsequent step involves conducting a reliability test on each factor (subscale) and overall scale item. If the item coefficient is at least 0.30, scale items are regarded as having acceptable validity. The reliability of this tool was analyzed using Cronbach's  $\alpha$ , which was also used to identify internal consistency. If the Cronbach's  $\alpha$  coefficient is close to 1.0 or at least 0.80, the reliability is considered acceptable [26].

Further exploration using comparative tests was conducted to evaluate differences in ISQOL-W between the categories of participants. The Mann-Whitney U test and Kruskal Wallis test were utilized to analyze differences in each category (age, relationship status, occupation status, education, history of last sexual activity, and type of sexual activity) based on total scores of ISQOL-W. First, all variables will be tested for normality. A  $p$ -value of less than 0.05 was

considered to indicate statistical significance. The developed tool was analyzed using the Jamovi 2.4.1 statistical software (The Jamovi Project, Sydney, Australia) [27].

## Results

### Participant's characteristic

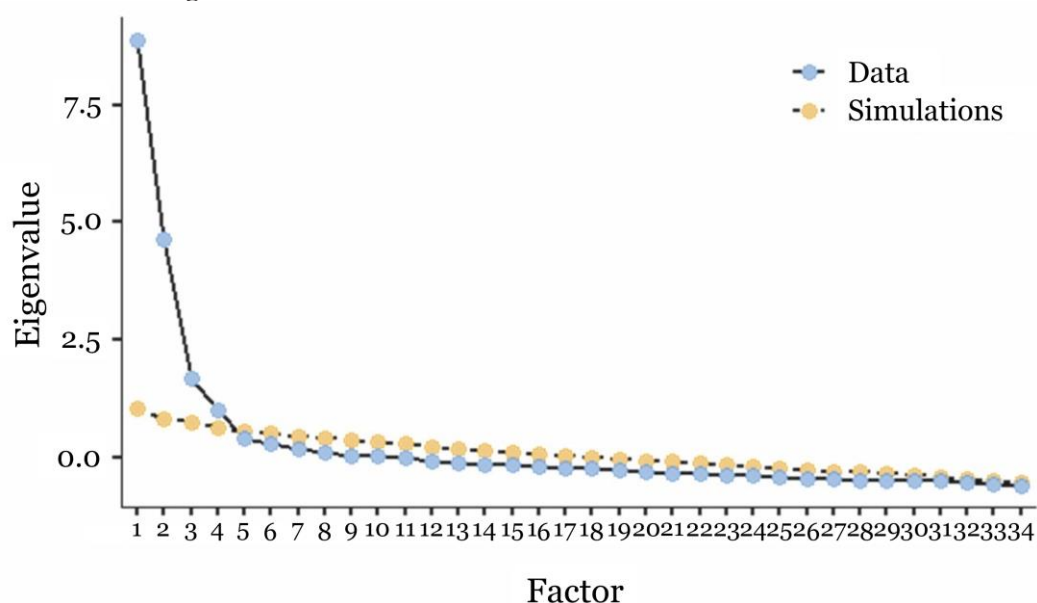
A total of 253 participants were recruited during the period from April 30, 2023, to September 30, 2023, and 25 participants were excluded due to no history of last sexual activity, resulting in 228 participants for final analysis. As presented in **Table 1**, participants were mostly between 20 and 30 years old, married, employed, educated at the university level, had a history of last sexual activity less than four weeks ago, and the type of sexual activity performed was intercourse.

**Table 1. Demographic characteristics of participants (n=228)**

Characteristic	Category	n	Percentages (%)
Age	20 to 30 years	160	70.2
	≥31 years	68	29.8
Relationship status	Married	199	78.6
	Unmarried	39	11.4
Occupation status	Employed	162	71.1
	Unemployed	66	28.9
Education	High school graduate or less	71	31.1
	University graduates	157	68.9
History of last sexual activity	Less than 4 weeks	179	78.5
	4 weeks to 3 months	36	15.8
	3 to 6 months	13	5.7
Type of sexual activity	Intercourse	165	72.4
	Oral sex	35	15.3
	Solitary	28	12.3

### Exploratory factor analysis

The construct validity was evaluated using EFA, and the results showed that the KMO measure of sampling adequacy was 0.898, and Bartlett's test of sphericity was  $<0.001$  ( $\chi^2=4302$ ;  $p<0.001$ ), indicating that the questionnaire was suitable for factor analysis. The values of the variables were analyzed using parallel analysis with maximum likelihood extraction and promax rotation as the factors were correlated. The scree plot shows the curves of the real data and the simulated data. It is clear that the four-factor construct determined by looking at the eigenvalues is supported (**Figure 1**). The graphic illustrates that the eigenvalues of the first four factors of the real data are higher than those of the first four factors of the simulative data and that the eigenvalues of the simulative data are greater than those of the fourth factor.



**Figure 1.** The scree plot of the actual data and the simulative data from the parallel analysis.

A total of 34 items with a loading factor  $>0.4$  were divided into 4 factors, whereas 34 items with a loading factor  $<0.4$  were excluded from the study. The four factors extracted were as follows: (1) factor 1 (sexual-related emotion) consisting of 14 items; (2) factor 2 (sexual fantasy) consisting of 8 items; (3) factor 3 (sexual arousal) consisting of 8 items; and (4) factor 4 (sexual relationship) consisting of 4 items, as presented in **Table 2**.

**Table 2. Results of exploratory factor analysis for the included 34 items**

Items	Statements	Factor 1	Factor 2	Factor 3	Factor 4
43.	I feel sad about my sexual problems	<b>0.831</b>	-0.027	0.145	0.002
42.	I feel anxious about my sexual life in the future	<b>0.827</b>	0.081	-0.006	-0.151
13.	I feel disappointed because of my sexual problems	<b>0.791</b>	-0.200	0.138	-0.081
17.	I feel anxious whenever I think about my sexual problems	<b>0.738</b>	-0.197	-0.056	0.017
19.	I regret my sexual problems	<b>0.715</b>	-0.217	0.123	-0.045
26.	I feel depressed whenever I think about my sexual problems	<b>0.685</b>	-0.170	-0.015	0.103
8.	I feel angry about my sexual problems	<b>0.598</b>	-0.026	-0.031	0.074
48.	I feel anxious or worried when I imagine my partner leaving me because of my sexual problems	<b>0.571</b>	0.218	-0.195	-0.138
15.	I feel comfortable with my body	<b>0.556</b>	0.293	-0.017	-0.027
4.	I feel ashamed of my sexual problems	<b>0.542</b>	0.126	-0.044	0.024
23.	I feel confident about my sexuality	<b>0.515</b>	0.126	-0.060	0.363
27.	I feel jealous that the woman I love is intimate with someone else	<b>0.508</b>	0.001	0.090	-0.070
14.	I am happy with my sexual life	<b>0.451</b>	-0.005	0.007	0.321
20.	I feel uncomfortable during sexual activity (penetration/masturbation/oral sex)	<b>0.411</b>	0.054	0.038	0.257
32.	When I see a handsome man, I feel like hugging him	-0.086	<b>0.831</b>	0.201	-0.160
45.	I imagine a physically attractive male body	-0.097	<b>0.819</b>	0.169	-0.052
40.	In my fantasies, I arouse great sexual desire in someone I admire	-0.119	<b>0.772</b>	-0.030	0.117
9.	I imagine the naked body of the opposite sex	-0.189	<b>0.711</b>	0.268	-0.072
39.	I feel emotionally vulnerable in sexual relationships	-0.221	<b>0.694</b>	-0.066	0.178
7.	People my age like my look	0.215	<b>0.680</b>	-0.123	-0.100
6.	My sexual imagination makes me easily aroused	-0.019	<b>0.582</b>	0.082	0.125
3.	I find myself attractive in others' eyes	0.240	<b>0.530</b>	-0.045	-0.107
36.	I feel palpitations when I am aroused	0.057	-0.066	<b>0.777</b>	0.019
10.	My breath is quicker when I am aroused	0.068	0.047	<b>0.763</b>	-0.023
25.	I feel the nipples of my breasts tense when aroused	0.077	-0.013	<b>0.702</b>	-0.069
12.	I feel my whole body tense up when I am aroused	0.059	-0.056	<b>0.689</b>	0.009
18.	I feel my clitoris become tense when aroused	-0.034	0.150	<b>0.612</b>	0.040
30.	I want to reach orgasm	-0.137	0.080	<b>0.582</b>	0.002
11.	I feel my vagina get wet when aroused	-0.008	0.020	<b>0.506</b>	0.052
22.	After sexual activities, I feel a sense of relief like a weight has been lifted from me	0.121	0.136	<b>0.457</b>	0.034
67.	My partner and I talk openly about sexual matters	0.050	-0.154	0.049	<b>0.840</b>
66.	I am comfortable talking about sex with my partner	-0.006	0.015	-0.007	<b>0.838</b>
64.	I express my sexual needs to my partner	-0.081	-0.005	0.019	<b>0.788</b>
65.	I initiate my partner to have a sexual intercourse	0.049	0.270	0.003	<b>0.464</b>
	Eigenvalue	8.88	4.64	1.69	1.01
	Variance, %	17.63	13.56	11.34	8.25
	Cumulative variance, %	17.6	31.2	42.5	50.8

The 'maximum likelihood' extraction method was used in combination with a 'promax' rotation. Items 4, 8, 13, 17, 19, 20, 26, 27, 42, 43, and 48 are reverse scored in producing a total score. The EFA was characterized by acceptable goodness of fit measures and assumption checks. Tucker-Lewis index (TLI) was 0.908, the root mean square error of approximation (RMSEA) was equal to 0.0515, and the model was statistically significant ( $\chi^2=693$ ;  $df=431$ ;  $p<0.001$ ). Items were grouped based on their factor and ordered by the highest loading factor within each group.

The loading factors for factor 1 ranged from 0.411 to 0.831, for factor 2 from 0.530 to 0.831, for factor 3 from 0.457 to 0.777, and for factor 4 from 0.464 to 0.840. Additionally, each of the four factors exhibited eigenvalues greater than 1.0, with the cumulative contribution of these primary factors accounting for 50.8% suggesting that these items represent over half of the total variance of the questionnaire [28]. The correlation coefficients between the factors and the entire questionnaire, as well as between the factors themselves, ranged from 0.180–0.788 ( $p < 0.01$ ) (Table 3).

Table 3. Intercorrelations among each factor and overall questionnaire

Factors	Sexual-related emotion	Sexual fantasy	Sexual arousal	Sexual relationship	Total questionnaire
Sexual-related emotion	1				
Sexual fantasy	0.180**	1			
Sexual arousal	0.222**	0.541**	1		
Sexual relationship	0.435**	0.409**	0.487**	1	
Total questionnaire	0.580**	0.788**	0.755**	0.786**	1

\*\*  $p < 0.01$  (two-tailed)

### Reliability

Cronbach's  $\alpha$  coefficient of the developed tool was 0.915. Cronbach's  $\alpha$  values for each factor of sexual-related emotion, sexual fantasy, sexual arousal, and sexual relationship were 0.903, 0.896, 0.863, and 0.826, respectively (Table 4). The tool showed good internal consistency, indicating that it was reliable. The final items of the ISQOL-W were ordered based on the results of EFA, which categorized the items into groups according to the factors and their highest loading values, as presented in the appendix.

Table 4. Item and factor reliability statistics

Factors	Item reliability statistics					Cronbach's $\alpha$ subscale reliability
	Items	Mean	SD	Item-rest correlation	Cronbach's $\alpha$ if the item dropped	
Sexual-related emotion	4	4.57	1.118	0.563	0.897	0.903
	8	4.93	0.957	0.591	0.897	
	13	4.83	0.939	0.684	0.893	
	14	4.98	0.880	0.562	0.898	
	15	4.93	0.945	0.581	0.897	
	17	4.63	1.204	0.644	0.894	
	19	4.79	1.192	0.618	0.895	
	20	4.84	1.150	0.529	0.899	
	23	4.91	0.978	0.660	0.894	
	26	4.75	1.016	0.639	0.895	
Sexual fantasy	27	5.00	1.416	0.476	0.903	0.896
	42	4.50	1.233	0.726	0.890	
	43	5.02	1.002	0.803	0.889	
	48	3.92	1.506	0.500	0.903	
	3	4.69	1.01	0.465	0.900	
	6	4.47	1.31	0.624	0.888	
	7	4.50	1.08	0.572	0.893	
	9	3.46	1.64	0.757	0.875	
	32	3.48	1.86	0.802	0.871	
	39	3.33	1.60	0.648	0.886	
Sexual arousal	40	4.00	1.64	0.740	0.877	0.863
	45	3.86	1.64	0.826	0.868	
	10	4.78	1.197	0.722	0.833	
	11	5.24	0.754	0.522	0.857	
	12	4.70	1.176	0.623	0.846	
	18	4.86	1.123	0.660	0.841	
	22	4.98	0.977	0.527	0.856	
	25	4.98	1.112	0.627	0.845	
	30	5.19	0.742	0.555	0.854	
	36	4.89	1.095	0.691	0.837	
Sexual relationship	64	4.86	1.003	0.682	0.770	0.826
	65	4.33	1.253	0.523	0.853	
	66	5.02	0.998	0.730	0.749	
	67	4.93	1.062	0.714	0.753	

*ISQOL-W comparison of each participant's characteristics*

To evaluate the difference in ISQOL-W between age, relationship status, occupation status, and education group, the Mann-Whitney U test was used. The test revealed significant differences in relationship status ( $p=0.003$ ) and education group ( $p<0.001$ ). However, there were no significant differences in age ( $p=0.290$ ) and occupation group ( $p=0.795$ ). The differences in ISQOL-W between sexual activity history and sexual activity type groups were tested using the Kruskal-Wallis test. The test showed a significant difference ( $p<0.001$ ) in the group's history of last sexual activity. The group with a history of last sexual activity less than four weeks showed a significant difference compared to those with a history of last sexual activity around four weeks to three months ( $p<0.001$ ) and those with a history of last sexual activity around three months to six months ( $p=0.001$ ). The score of ISQOL-W was highest in the group of last sexual activity less than four weeks compared to the others. Finally, the group of sexual activity types revealed significant ( $p<0.001$ ) differences between the intercourse group with oral sex activity ( $p<0.001$ ) and solitary activity ( $p=0.029$ ). The intercourse group had the highest ISQOL-W score than the others. These findings are detailed in **Table 5**.

**Table 5. Characteristics of the participants with total scores of ISQOL-W**

Category	Mean±SD	Median (min-max)	p-value
Age			
20 to 30 years old	158±21.1	156 (102–190)	0.290 <sup>b</sup>
≥31 years old	155±20.5	153 (107–189)	
Relationship status			
Married	159±21.4	156 (102–190)	0.003 <sup>b</sup>
Unmarried	148±16.2	149 (118–180)	
Occupation status			
Employed	157±19.4	155 (107–190)	0.795 <sup>b</sup>
Unemployed	156±24.6	156 (102–189)	
Education			
High school graduate or less	164±22.3	164 (102–190)	<0.001 <sup>b</sup>
University graduates	153±19.0	153 (105–189)	
History of last sexual activity <sup>a</sup>			
Less than 4 weeks	161±19.9	160 (105–190)	<0.001 <sup>c</sup>
4 weeks to 3 months	144±18.3	147 (102–186)	
3 to 6 months	138±17.6	137 (107–166)	
Type of sexual activity <sup>a</sup>			
Intercourse	161±20.4	159 (102–190)	<0.001 <sup>c</sup>
Oral sex	145±19.6	139 (107–186)	
Solitary	150±18.5	150 (119–186)	

<sup>a</sup> post-hoc analysis between the type of sexual activity group: intercourse vs oral sex,  $p<0.001^*$ ; intercourse vs solitary,  $p=0.029^*$ ; oral sex vs solitary,  $p=0.399$ . Post-hoc analysis of the history of the last sexual activity group: less than 4 weeks vs 4 weeks to 3 months,  $p<0.001^*$ ; less than 4 weeks vs 3 to 6 months,  $p=0.001^*$ ; 4 weeks to 3 months vs 3 to 6 months,  $p=0.543$ . <sup>b</sup> Mann-Whitney test. <sup>c</sup> Kruskal-Wallis test.

**Discussion**

This is the first study to develop and validate a scale to quantify Indonesian women's sexual quality of life. The process of developing the scale used concept analysis, according to McClelland [4], and validation through construct validity and reliability tests. The results of EFA showed four factors, namely sexual-related emotion, sexual fantasy, sexual arousal, and sexual relationship.

Sexual-related emotion contains the most significant number of items at 16, indicating the psychological impact of sexual experiences that have been experienced (sexual dysfunction and sexual satisfaction) in the form of feelings of happiness or sadness. Sexual fantasy as the second factor, contains 8 items reflecting any imagery that is sexually appealing or seductive to the individual. The third factor, sexual arousal, contains 8 items that indicate an individual's physical response to sexual stimulation. The last factor was the sexual relationship, which contains 4 items that indicate things that individuals need to disclose to their partners to improve sexual quality, including sexual needs, initiating sexual activity, and talking openly about sexual problems. The scale showed satisfactory results in terms of loading factors (0.411–0.840), item-total correlation (0.465–0.826), and Cronbach's  $\alpha$  coefficient (0.753–0.903), indicating that the item's reliability and correlation were acceptable. A total of 4 factors with 34 items were constructed. The total

score of ISQOL-W ranges from 34 to 204. Higher scores were indicative of good sexual quality of life, while lower scores were indicative of poor sexual quality of life.

To date, there is no sexual quality of life scale established in Indonesia. Some of the previous scales originated from abroad, which still cannot cover all sexual aspects that can affect the quality of life [13,14,16]. The most popular sexual quality of life scale for females (SQOL-F) was the one created by Tara Symonds [14]. This scale contains 18 items, which are divided into 4 domains namely, physical, social, emotional, and psychological. The sample used in the study came from countries in Europe and the United States of America [14]. Meanwhile, recommendations from McClelland's study, it is stated that the sexual quality of life is strongly influenced by culture, norms, and social norms, which vary from each country [4]. The SQOL-F focuses more broadly on individual emotional responses to sexual experiences, such as frustration or anxiety, without explicitly addressing the cultural and societal norms that shape these experiences [14]. In contrast, ISQOL-W reflects Indonesian cultural influences, such as feelings of shame about sexual problems, anxiety over partner reactions, and body image concerns, thereby highlighting the impact of conservative social norms on women's sexual quality of life. Therefore, the sexual quality of life scale for women in Indonesia should be based on Indonesia's cultural background.

Indonesia is a diverse country with rich cultural values, influenced by traditional values and forms of religion that shape attitudes toward sexuality [29]. Discussion about sexual matters is often considered taboo, private, and closed, and there is a significant emphasis on modesty and propriety [6]. Despite the fact that today's youth are influenced by the cultures of Western countries, tradition, and culture have intrinsic significance that endures across generations [17,30]. The belief in male dominance over women persists in Indonesian society [31,32]. This patriarchal culture grants men full control over their partner's sexuality. It is highly appreciated for a girl to be a virgin before marriage and for a wife to be faithful after marriage, but these expectations are not placed on males [32]. For example, item 4 (**Table 2**) "*Saya malu dengan masalah seksual saya*" (I feel ashamed of my sexual problem), and item 48 (**Table 2**) "*Saya cemas/khawatir ketika membayangkan pasangan meninggalkan saya karena masalah seksual yang saya alami*" (I feel anxious or worried when I imagine my partner leaving me because of my sexual problems), indicated that Indonesian women who experience sexual difficulties do not experience any worry or anxiety regarding their quality of life. Women are often viewed as sexual objects, meaning that sexual relations occur solely to satisfy the male partner, regardless of whether the woman has sexual issues or not, as long as she can satisfy her male partner's desires [33].

ISQOL-W showed a significant difference between the married and unmarried groups. Prior research indicates that married couples had higher levels of sexual pleasure than singles and that marriage creates a better environment for sexual fulfillment. Married individuals are more emotional and satisfied than cohabitants in terms of sexual life [34]. There was no significant difference between participants aged less than 30 years old and above 30 years old. A study by Manfred in Germany showed that women aged 30 and above have a significantly lower sexual desire than younger women [35]. In addition, changes in the body and hormone levels, particularly estrogen, can occur with age, leading to alterations in mood, irritability, anorgasmia, decreased libido, and impaired sexual performance [36,37]. The absence of a significant difference in sexual quality of life between age groups could also be due to social and relational factors that outweigh biological changes. Sexual issues remain non-transparent and private, leading to similar patterns of sexual expression among Indonesian women across all ages [6,7]. Additionally, the impact of norms and culture on Indonesian women causes them to play an important role in maintaining the household and preserving family relationships over their sexual desires [38,39].

There was a significant difference in the education group. According to research in Chile, sexual pleasure increased in conjunction with the education level [40]. Meanwhile, a low level of education can have an indirect impact on sexual function, affecting well-being and causing distressing symptoms, resulting in impaired sexual function parameters [41]. In terms of occupation, the groups showed no significant differences. A study by Enas showed employed women had better sexual function in terms of more sexual intercourse and more instances of spontaneous desire and were better able to have orgasms than non-employed women [42].



However, compared to those who work part-time shifts or do not work, employed women who work longer hours, weariness, job-related stress, or discomfort at work exhibit lower levels of sexual satisfaction and frequency of sexual activity [43]. History of last sexual activity had a significant difference between sexual activity less than four weeks with sexual activity around four weeks to three months and three months to six months. The scores of ISQOL-W increased with the more recent sexual activity. Frequent sexual activities enhance emotional intimacy, relationship satisfaction, and sexual function, contributing to a better perception of sexual well-being [44,45]. Additionally, engaging in sexual activity is linked to improved health and correlates with higher levels of life satisfaction [45]. Finally, the type of sexual activity had a significant difference between intercourse with oral sex and solitary activity. Having penile-vaginal sex more frequently than engaging in other sexual activities is linked to greater levels of sexual satisfaction, health, and well-being. In contrast, oral sex was linked to lower relationship satisfaction, and frequent masturbation was linked to lower levels of pleasure and sexual fulfillment [46].

Despite its strengths, this study has several limitations. As a preliminary study involving 228 Indonesian women, a larger sample size may yield more robust findings. Therefore, future studies are recommended to use the instrument with a larger and more diverse sample of Indonesian women, considering factors such as ethnicity, province, age (particularly those above 30), and various socio-demographic characteristics. Additionally, it is suggested that future research conduct confirmatory factor analysis.

## Conclusion

The ISQOL-W instrument, developed within the Indonesian context, has proven to be both valid and reliable, making it suitable for use in future research. Furthermore, it is crucial to test the correlations between the newly created sexual quality of life scale and additional aspects of sexual well-being among Indonesian women to inform effective preventative and intervention strategies. The ISQOL-W was developed and underwent rigorous psychometric testing to provide an instrument for measuring the sexual quality of life among Indonesian women. This instrument will enable more accurate assessments and help to further understand and improve the sexual quality of life for Indonesian women.

## Ethics approval

This study was approved by the Health Research Ethics Committee of Faculty Medicine Universitas Diponegoro number 440/EC/KEPK/FK-UNDIP/XII/2022 and was conducted according to the Declaration of Helsinki.

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## Competing interests

All the authors declare that there are no conflicts of interest.

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## Underlying data

Derived data supporting the findings of this study are available from the corresponding author on request. The ISQOL-W questionnaire is available at <https://doi.org/10.6084/m9.figshare.26322313> and permission to use this scale can be obtained from the corresponding author.

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